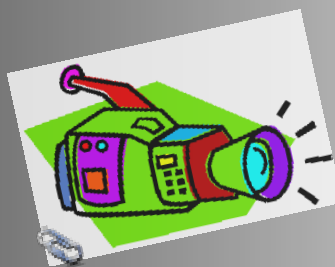


## 5.6 The Standard Form of a Linear Equation



$A, B \in \mathbb{C}$  integers

$A$  is pos

$x, y$  on same side =

$$Ax + By = C$$

No common Factor

$$A \neq B \neq 0$$

**STANDARD FORM:  $Ax + By = C$**

**A, B, & C CANNOT have common factors**

**A & B both CANNOT be zero**

**A, B, & C MUST be integer coefficients**

**A is ALWAYS positive**

Change  $y = \frac{1}{2}x - 3$  to standard form

$$+4 = \frac{1}{2}x - 3$$
$$-\frac{1}{2}x - \frac{1}{2}x$$
$$-2(-\frac{1}{2}x + 4 = -3)$$

$$1x + -2y = 6$$

$$A=1 \quad B=-2 \quad C=6$$



Pull

Change  $y = \frac{2}{3}x + 5$  to standard form



Pull

Change  $y = \frac{7}{2}x + \frac{1}{4}$  to standard form

$$4(y) = 4\left(\frac{7}{2}x + \frac{1}{4}\right)$$

Pull

$$4y = 14x + 1$$

$$-14x \quad -14x$$

$$\frac{-14x + 4y}{-1} = \frac{1}{-1}$$

$$14x + -4y = -1$$



Write the standard form of the equation of a line passing through  $(4, -3)$  with a slope of  $-2$ .

$$(4, -3) \quad m = -2$$

$$-3 = 4(-2) + b$$

$$-3 = -8 + b$$

$$+8 \quad +8$$

$$5 = b$$

$$y = -2x + 5$$

$$+2x + 2x$$

$$2x + y = 5$$



Write the standard form of the equation of a line passing through  $(-5, 1)$  with a slope of  $\frac{3}{4}$



Pull

Write the standard form of the equation of a line passing through (2, 9) & (4, 7)

$$(2, 9) \quad (4, 7)$$

$$m = -1$$

$$b = 11$$

$$y = -x + 11$$

$$+1x \quad +1y$$

$$x + y = 11$$

$$x + y = 11$$





**Write the standard form of the equation of a line passing through  $(3, 0)$  &  $(-5, 3)$**



**Write the standard form of the equation of a vertical line passing through the point  $(2, 1)$**



**Write the standard form of the equation of a horizontal line passing through  $(6, -5)$**



Pull